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The MONTHLY REVIEW

Published Monthly by the

American Electroplaters Society

A SOCIETY FOR THE ADVANCEMENT
OF THE
SCIENCE OF ELECTROPLATING

NOVEMBER, 1924

Entered as second-class matter, September 26, 1922, at the Post Office at Oneida, N. Y., under the Act of August 24, 1912.

Acceptance for mailing at special rate of postage, provided for in section 1103, Act of October 3, 1917, authorized September 26, 1922.

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Honesty does not merely mean that you will not lie with your lips, or steal your employer's money or property. It means that you will not be dishonest in your work by slighting or neglecting it, that you will not steal your employer's time, waste or spoil his goods, and that you will do your level best in everything, do every task to a complete finish, stamp every job that passes through your hands with superiority, with the trade-mark of your character.

MONTHLY REVIEW

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American Electroplaters' Society

ONEIDA, NEW YORK

Editor's Office, 166 Willow Place, Sherrill, New York

VOL. XI NOVEMBER, 1924 No. 11

PRESIDENT'S MESSAGE

I wish at this time to extend to the membership from Supreme Society greetings, and ask that, with business beginning to resume in different parts of the good old U. S. A., we all join and give thanks on November 27 (Thanksgiving), and also wish you all a Merry Xmas and a Happy New Year, as this is the last issue that will reach you prior to 1925.

And as a fitting finis to a year of brooding and melancholy over unemployment in our industry, would suggest that the membership kill depression by going forth and deliberately doing some foreman plater a good turn and lift his gloom by having him sign an application for the A. E. S. at this time, where he will meet with men who make a practice of benevolent thought and think kindly of others, never criticising, condemning or judging, but contrary, do all condone, excuse, justify and seek to comprehend their fellow-plater members needs and necessities that they may progress in this industry and the society be better thereby. A band of God-fearing, red-blooded, unselfish citizens with whom it is not only a privilege but a pleasure to associate and as a closing thought if each member would just bring in one application to his branch this year we could go to Montreal Convention 2,000 strong, and this additional strength and purchasing power would insure a two-fold progress for the American Electroplaters' Society, the most useful organization of tradesmen in the world.

Sincerely yours,

F. J. HANLON,

Supreme President.

REPORT OF THE JOINT CONFERENCE OF THE BUREAU OF STANDARDS AND RESEARCH COMMITTEE OF THE A. E. S.

Washington, D. C., Nov. 15, 1924.

To Members of the American Electroplaters' Society:

The Research Committee is very pleased to be able to offer the following report of the Joint Conference with the staff of the Section of Electrodeposition of the Bureau of Standards.

In addition to the Bureau's staff and the Research Committee there were present about twenty-five platers and chemists and about twelve engineers representing manufacturers interested in plating and plating materials.

The morning session of Friday, Nov. 14, at which Dr. Blum presided, was given over to a summary of Bureau work and the purpose of the conference, with a review and discussion of work already published in the form of letter circulars, which are still available for free distribution.

Discussion of the "Control of Acidity in Nickel Deposition" (Letter Circular No. 82, B. of S.) indicated that many platers are using the Gillespie drop-ratio method with very satisfactory results. Careful control at a suitable P^H value materially assists in assuring high cathode efficiency, good solubility of anodes, maintenance of clear solutions, and a deposit of uniformly excellent quality. There is no proper P^H value applicable to all conditions, but it must be determined for each set of conditions. In general increased current density, higher temperature, agitation, hard and bright deposits require a lower P^H (higher acidity) than the reverse conditions.

Attempts to calculate mathematically the amount of acid or alkali needed to correct the acidity to a definite P^H have not been satisfactory on account of the widely varying composition of solutions, both as to main constituents and impurities. It has been found practical, however, to maintain good shop practice by establishing an empirical table of corrections applicable to any standardized solution formula.

Much interest was shown in the Sterling Wedge apparatus for P^H measurements. Discussion seemed to indicate, however, that its users were usually disappointed

with it on account of its lack of accuracy and the instability of the solution. It was stated that the addition of a drop of formaldehyde to the brown-cresol-purple solution used in this and the drop-ratio method seemed to considerably increase its stability. It is hoped that these defects can be overcome in the near future, in which case the wedge apparatus would be of very great value in the plating room.

"Throwing Power" (MONTHLY REVIEW, Aug., 1923) and Bureau of Standards, Letter Circulars 125, discussion reviewed general principles governing, and also gave the form of a simple piece of apparatus called the "distribution box" for the determination of the relative values of different solutions and different conditions. It was emphasized that all values thus determined are purely relative and will vary widely under varying conditions. In general the throwing power is increased by lowering the current density, temperature, agitation and metal iron concentration, and is decreased by reversed condition. Addition agents have varying effects. Those tending to increase polarization give a marked increase in the throwing power. The beneficial effects of magnesium sulphate and sodium sulphate, sometimes used, is ascribed to this fact, although it has not previously been understood in this light. Several persons present reported having improved their plating practice in various respects after checking their operating conditions with the distribution box. The Bureau has available several sets of this apparatus, which it is glad to loan to concerns otherwise equipped with the necessary laboratory apparatus for making use of them.

The desired standard of "Purity of Nickel Salts" (Letter Circular No. 93) was given as the following:

Zinc, maximum	.05%
Copper, maximum	.02
Iron, maximum	.10
Free Acid, as H_2SO_4, maximum	.10
Total Nickel, Single Salts, Minn.	21.39
Total Nickel, Double Salts, Minn.	14.72

It was stated that nearly all samples of commercial salts examined had been up to the above specifications, and several had been considerably better. All of those present

dealing in nickel salts agreed that the commercial articles should conform to this specification and could do so without any increase in cost to the user. The Bureau and Research Committee therefore particularly urge that as many manufacturers as can do so incorporate the above in their purchase specifications on double and single salts.

It was also brought out that there was a need of a specification limiting the amount of organic matter. The commercial salts may contain such impurities or contamination as glue, sugars, resins, tannins and other organic substances of indefinite and undeterminable composition, which give rise to serious trouble, chiefly pitting. Two persons present stated independently that they had prevented pitting on new solutions or after addition of new salts by treating the solution with peroxide and permanganate of potash respectively in small amounts, thus effectively oxidizing the organic matter. It was pointed out that permanganate had one advantage of giving a brown precipitate of manganese deoxide when a very slight excess over the required amount was added. This precipitate disappeared in a short time, as soon as enough hydrogen was generated in the solution to dissolve it.

Several methods of establishing a standard test for organic matter were suggested, such as a carbon determination, loss on ignition, pitting test, and permangante absorption value. The Bureau will appreciate the opportunity to check any method which may be submitted to them in this connection, and to consider it as an addition to the specification on nickel salts.

On "Nickel Anodes" (Letter Circular No. 115) a specification for the 95-97% cast anode was suggested as follows:

Nickel, minimum	95.00%
Carbon, Minimum	1.25
Sulphur, Maximum	.10
Copper, Maximum	.25
Iron, Tin Silicon, Maximum, ea.	1.00

Carbon is the active ingredient tending to decrease passivity and polarization, and increase uniform corrosion and solubility. Surphur and copper are injurious, inducing disintegration and streaking and therefore should be

kept at the low limits. Iron, tin and silicon have no particularly harmful effect other than lowering the nickel content and increasing the sludge. Their presence is therefore not recommended over a nominal amount.

Several persons present stated that they were getting very satisfactory results with electrolytic sheet nickel anodes, particularly in chloride solutions. This form of nickel has the advantages of lower cost per pound, less tank load, high purity and freedom from sludge and slime. It has the disadvantage of disintegration and peeling of the nickel laminations and irregular corrosion. The logical need therefore is for a high purity anode which will combine the advantages of both of the above types, that is a 99% cast anode of good solubility and uniform corrosion. Attempts to produce an anode of this type seem to have been not entirely successful in the past. It is thought, however, that much interest was aroused by this discussion with several anode producers, and we have considerable hope that they may be more succesful in the near future.

In addition to the Letter Circular indicated above, the following are also available for free distribution, and should be in the **hands** of every plater and plating chemist:

L.C. 121, Publications on Electro-deposition from the Bureau of Standards.

L.C. 120, Conductivity of Nickel Solutions.

L.C. 33, Structure of Alternately Electro-deposited Metals.

L.C. 34, Lead Plating from Fluoborate Solutions.

L.C. 4, Electro-Deposition of Lead-Tin Alloys.

This review of discussion of this session emphasized the particular point that wherever it is being applied the work of the Bureau is of great value in improving manufacturing practice.

The first subject of the afternoon session was a progress report by Mr. C. T. Thomas on the "Protective Value" of Nickel Plating on Iron and Steel."

Mr. M. R. Thompson outlined some preliminary work on the "Nickel Plating of Zinc and Die Castings," the feature of which was the use of a high concentration of sodium or magnesium sulphate. The particular solution which he suggested had the following composition:

Single Salt .....19. oz. per gal.
Ammonium Chloride ..... 1.8 oz. per gal.
Boric Acid ..... 2.1 oz. per gal.
Sodium Sulphate (crystals) ....64.0 oz. per gal.
Or Sodium Sulphate (anhyd.) ..28.0 oz. per gal.

The characteristics of this solution which makes it particularly adapted for plating on metals of high solution pressure, such as sheet zinc and die castings, is its high polarization, excellent throwing power and freedom from streaking. One person present who had used the solution for a short time on production work, reported favorably in this respect, but also noted increased tendency to burn under ticularly adapted for plating on cathodes of low conductivity, such as sheet zinc and die castings, is its high polarization, excellent throwing power and freedom from streaking. One person present who had used the solution for a short time on production work, reported favorably in this respect, but also noted increased tendency to burn under the ordinary current density used for his particular work. However, reducing the single salt content from 19 to 10 oz. per gallon, overcame this difficulty to a large extent. He also stated, in his opinion, the value of the method lay not in the use of the particular formula given, but merely in the use of a higher content of sodium sulphate which might be added to advantage to any solution designed for die casting without varying the other components of the solution. No unusual trouble in peeling or blistering was experienced. Further work will be done on this subject to co-ordinate the data already obtained so that more definite conclusions can be drawn therefrom.

Dr. Hildebrand, Chief Chemist of the Chemistry Division, addressed the conference and welcomed those present to the Bureau, urging them to make free use of all its facilities for making their visit of professional and personal value. Many did take advantage of this invitation to visit other departments of the Bureau, and to meet the members of the Research staff with whom they discussed problems of general and personal interest. The courtesy and co-operation of these gentlemen was very much appreciated.

The morning session of Saturday, Nov. 15, at which the

chairman of this committee had the privilege and pleasure of presiding, was given over to a general open discussion of subjects for future research, establishment of specifications for plated products, means of advancing the education of the plater, and co-operative measures between the A. E. S., Bureau of Standards, and other technical organizations.

Dr. Blum opened the session by giving a statement of the present status of the staff and their work. The staff itself consists of three graduate chemists, Dr. Blum, Mr. Thompson and Mr. Haring; one assistant chemist, Mr. Thomas; one research associate, Mr. Winkler, and one consulting plater, Mr. Hogaboom.

Mr. Thompson is at present working on nickle plating on zinc; Mr. Haring has recently started the investigation of chromium plating; Mr. Thomas has further work on rust resisting of steel; Mr. Winkler, supported by the International Electrotypers' Association, is concerned with their particular problems; Mr. Hogaboom contributes his wealth of practical experience as called upon in a consulting capacity.

There is much interest in the future possibilities of chromium plate. Its particular characteristics are a hardness greater than heat treatd steel, and high resistance to corrosion, particularly at high temperatures. Possible uses fall into four general classifications:

(1) For ornamental finishes requiring high lustre it is hardly to be expected that it will replace nickel extensively on account of its high cost. It also has the disadvantage of being exceedingly hard to buff.

(2) Although in itself it is practically non-tarnishing it effers no particular protection to steel, comparable with zinc.

(3) Its resistance to heat effects may make it of great value where steel and other metals tend to form scales, such as on hot forging dies, furnace linings, thermal couple elements, etc.

(4) Hardness and resistance to abraison covers its most important field of usefulness, for such work as printing plates, gauges, bearings, scientific and medical instruments, cutting tools, such as shears, punches and machine parts.

The subject of zinc plating merits a general survey,

particularly to secure better results from the acid zinc solution. Many of the principles established in connection with the study of nickel are applicable to the study of zinc, which will simplify this research to a marked extent.

In connection with the discussion of the subject of zinc plate, Mr. Wernlund of the Roessler & Hasslacher Research Laboratory demonstrated a simple test for thickness of zinc on steel. In principle the test depends on the length of time it takes for a standard strength solution of peroxide in acetic acid to dissolve the coating of zinc down to the base metal which then shows up as a rusty coloration. In practice the solution is made up of a 2% solution of sodium peroxide dissolved in 3.5% acetic acid. For the test this solution is heated just below the boiling point, at which temperature the test piece is immersed. The time necessary for the rust coloration to appear is taken as an index of the thickness of the deposit.

The whole subject of brass plating appears to merit a careful survey. Present methods are largely worked out on the rule-of-thumb basis with little real knowledge of principles governing the plate. The points to be investigated include total metal concentration, ratio of copper to zinc, composition of anodes, temperatures, current densities, use of brighteners, resistance to corrosion, structure of deposits, and particularly, methods of analysis of solutions.

At this point Mr. Hogaboom outlined a method for the removal of excessive amounts of sodium carbonate from a brass solution, recently developed at the P. & F. Conbin Co. In principle the method depends on the fact that the sodium carbonate is the least soluble component of the solution containing in addition copper cyanide, zinc cyanide and sodium cyanide. In practice the solution of ordinary concentration is evaporated by means of steam coils to about one-half its original volume. When allowed to cool at this concentration the $Na_2 CO_3$ crystalizes out practically free from the more valuable constituents. The liquor can then be drawn off and used for a new solution, while the crystalized sodium carbonate may be used in cleaning solutions, if desired.

There is also a need for more short testing methods similar in nature to that given above for zinc, for use in the

plating room to supplement laboratory and service tests. Simple testing instruments, such as the Sterling wedge, would also be of great value. Anyone originating anything along these lines is invited to submit the same to the Bureau.

Conclusions drawn from the discussion were that further research should be applied particularly on chrominum, brass and zinc plating. It was also indicated that certain details of the purity of nickel salts, P^H measurements, 99% cast anodes, and methods of analysis, might be given some further attention.

Dr. Blum is chairman of the sub-committee of the Federal Specifications Board on silver plated products. In this connection, acting at the request of the Navy Department, the Bureau is collecting data from manufacturers in which to base specifications for silver plated tableware. Other specifications should be established for various classifications of products by manufacturers or manufacturers' organizations acting in co-operation with the Bureau of Standards and the American Electroplaters' Society. A well-writen specification would include a statement of the thickness or weight per unit area, together with precise methods for determining the physical characteristics of the same.

Discussion of educational methods aroused a particularly lively interest. Wherever successfully maintained, classes for platers are of great value in strengthening the educational influence and attendance of branch meetings. Philadelphia Branch is particularly fortunate in having all desired facilities at its disposal from the university authorities. Newark Branch also reported a very successful school. Other classes have in the past been attempted with only partial success. One reason has been lack of a properly written text-book. The Committee particularly wishes to call attention to the fact, this lack is now very adequately filled by the publishing of "Principles of Electroplating," and "Electroforming" by Dr. Blum and Mr. Hogaboom. This book is designed to present such theory of chemistry and electricity in connection with the discussion of modern practice as the up-to-date plater need to keep abreast with the present trend of advancement of the scienc. It is published by McGraw-Hill Book Company.

RESERCH COMMITTEE---THOSE WHO ATTENDED MEETING

Lack of time prevented extended discussion of co-operative measures during the meeting, although Dr. Blum and the Committee devoted much time to their consideration. It is pointed out that there are other institutions, such as the universities and large industrial concerns, which are doing research on subjects connected with electro-deposition which bring out facts of value to the plater. For the most part such researches are reported through the publications of the American Electrochemical Society. After consulting with Mr. Mesle, our editor, Dr. Blum has agreed to prepare non-technical abstracts of such articles for publication in the MONTHLY REVIEW.

The conference was honored by a short address by Dr. Burgess, Director of the Bureau. Dr. Burgess expressed his own and Dr. Blum's gratification in the co-operation received in the past from the American Electroplaters' Society, and his particular pleasure in the attendance and spirit of the present series of meetings.

The Committee particularly urges that all members of the A. E. S. attending this conference shall at the first opportunity emphasize the fact to their fellow-members that so many platers have improved their plating practice by applying principles and practice worked out and published by the Bureau; and to point out to them how others can take advantage of this same information.

Dr. Blum also requests that any platers running into difficulties in attempting to apply the Bureau's information, shall write him in detail of their conditions. He will be very glad to supplement any published data with a discussion of its application to particular conditions. Criticisms and suggestions will also be at all times welcomed.

This Committee believes that the question raised at the Milwaukee convention as to whether the amount expended by the Bureau of Standards on research on electroplating has been worth while, has been answered by this conference with an emphatic affirmative. It is therefore our earnest desire on behalf of the A. E. S. that this work shall be continued, to a greater degree if possible, and certainly it should be in no respect curtailed.

This work is made possible by a congressional appropriation under the general heading of industrial research. Al-

though no curtailment is anticipated, it is conceivable that in the present spirit of economy at Washington a congress not informed as to the real value of this work might consider it a proper place to cut its appropriations. A very effective means of forestalling any such action will be for every member of the society to write a personal letter to his congressman, calling his attention to the fact that, largely on account of the Bureau of Standards' Industrial Research work on electro-deposition in the past five years, the electroplating industry has made tremendous progress in improving the quality of its product and lowering its manufacturing costs. This action is important and should be effective if carried out.

The Research Committee wishes to express the appreciation of the society to Dr. Blum and his associates for their splendid service in its behalf, and to personally thank the members attending for their support of its efforts.

R. L. SHEPARD, Chairman
S. E. HEDDON
PHILLIP UHL

BRASS FINISHES

In making brown and statuary bronze finishes on brass and bronze, we generally start by polishing and buffing the article cleaning same and scratch-brushing it wet with pumice stone. Now, scratch-brushing takes time, and is not a very pleasant job; and it also deadens the surface, which is not desired if a high lustre is needed.

The following method is as quick and as simple as oxodizing copper. We take work from buffer, hang same in cleaning solution for about ten minutes, which loosens up buffing compounds, from cleaner bright dip, rinse off and immerse in a solution made up of four ounces of muriatic acid, eight ounces sulphade of copper, 1 gallon water for about twenty seconds, use cold, rinse off in cold water and immerse in hot water about twenty seconds, then in cold water. Then immerse in a solution made up of sulpheritte of antimony.

One to four ounces caustic soda, eght oz. water am monia,, water one gallon for about thirty second or until the brown appears, rinse off in cold water; then in hot

water and dry with sawdust or heat. Now scratch brush the same as any oxodized finish; this will give you a nice statuary bronze on brass. If you wish a darker finish run through the dips again, but for the general run of work one immerse in the dips will do.

If you wish a lighter brown use dips given above, but omit ammonia. Now there is another finish which is seems is not generally known in this country. It seems most of it comes from England and it is known as light and dark Old English brass. Some time ago I had to match up some work with this finish.

But I was puzzled how to get it, but finally got it and thought it would interest some in the society. So I made up samples for those that are interested. For light Old English brass, buff artcle, clean it and bright dip, immerse in copper, dip given above; rinse off and immerse in antimony dip without ammonia till a brown smut appears and starts to flake off in spats; remove, rinse off in cold water, then in hot water, and dry with the aid of heat. Sawdust will not do.

Now take article and run it over a dry buff or you may use a very little white finish on the wheel with a little more pressure here and there gives you the cloudy effect. If you wish a more mottled effect pass through a weak copper dip, dry off and run very lightly over dry buff and lacquer. For dark old English Brass use Copper sulphate dip given above and the antimony dip without ammonia; heat up the antimony dip to near boiling, clean and bright dip article immerse in copper dip until a heavy smut appears, rinse off in cold water, then in hot water, and dry with the aid of heat run over dry buff as before given with more pressure here and there.

If you wish a darker finish run through dips again which will give you a color running from brown to black, buff and lacquer.

By changing the strength of this solution and the length of time in same, you can get some nice mottled effects. For statuary bronze on bronze metal, I prefer these dips to liver of sulphur as it is more easy to get a uniform color on all pieces.

If you wish a black and bronze, heat up antimony solu-

tion and try using the antimony dip that it will produce a deep black on silver.

MR. ERNEST ATKINS
2309 Washington Bld.,
Chicago, Ill.

IT'S UP TO YOU

What will you do with this?

Hhere is a chance to help place in your own hands a book of real merit. What will you do with the proposition offered by Mr. Hass in his letter which follows?:

October 27, 1924.

Mr. Frank Mesle,
Editor of MONTHLY REVIEW.

Dear Mr. Mesle and Members of American Electroplaters' Society:

At one time we started to publish in the REVIEW data that I had gathered from various sources which I had found useful and pertaining to electro-deposition of metals. You will recall that we had difficulty in running it, due to lack of space in the REVIEW.

Consequentliy I asked you to return the data to me and that I would work out some other plan of getting the data to the members. This plan is now set. I have the data in the hands of a printer to publish in book form, provided it is desired, and enough subscriptions are obtained to cover the cost of the printing. The following gives but a partial list of the contents:

1. Mathematical formulas; tables of conversion; specific gravity tables.

2. Table of international atomic weights; electro-chemical equivalents; lists of chemicals and properties; metal percentage of salts.

3. Electrical units and formulas; weights and thickness of deposits; weights of metal deposited of standard solutions from 1-100 amperes from 1 minute to 1 hour.

4. Electroplating equipment; ampere carrying capacity of cobber wires; choosing rheostats; figuring electroplating equipment; plating room diagrams.

5. Qualitative and quantitative analysis of plating solutions and supplies.

6. Problems illustrating the use of various formulas and tables.

7. A reference to electroplating literature.

The book as published will contain approximately 250 pages and will be paper-covered.

At this point it becomes necessary to state why I have written all this to you: I would like to have you publish this letter in the REVIEW. Since this is no business enterprise I can see no objection to it. All I wish to do is to place in the hands of our members data under one cover that I have had to gather and have found useful in many ways. There will be 500 printed, for which the printing bill will be $1,020. The printing bill is high, due to the many tables, which are difficult to print. Therefore it is necessary to fix the price of the book at $3.00 each to cover the printing bill and registered mailing costs. It would be of considerable aid if those members wishing the book would forward the price of the book to help meet the printing bill. How many members are willing to trust me with three ($3.00) dollars for a period of six to eight weeks? If in that time not enough members have signified a willingness for the book all checks received will be returned.

Sincerely yours,

JOS. HASS,
211 South High Street,
Muncie, Ind.

BRANCH NEWS

Toronto Branch

Our members were given an opportunity to learn many interesting and instructive things about the petroleum industry at our October meeting. Mr. Wade Hampton of the Imperial Oil Company gave us a truly fascinating talk, describing the methods used in selecting a site, drilling a well, testing the oil, distributing the oil, refining and marketing. The speaker may have addressed larger audiences but never a more attentive one. This was the first of a number of talks relative to oil and its by-products which we hope to have.

Subject for discussion Nov. 24 will be "Pickling," and will include "Bites," and every member is requested to have a sample of some product before and after pickling.

A very fine discussion on the "Influence of the base metal upon the deposited coating" was opened by Mr. Thomas O'Keefe, who displayed

several specimens of Britania metal, etc., silver plated. The discussion developed into group talks and continued until nearly 11 o'clock .

Reports from Technical School class in plating indicate considerable increase in membership.

Dr. J. G. Cunningham, director of Division of Industrial Hygiene Provincial Board of Health, will address us on "Nickel Itch" on same evening.

Waterbury Branch

The members of Waterbury Branch, A. E. S., and a number of their friends were entertained by Prof. Luther Bahney, metalurgist of the Scoville Manufacturing Company, at the meeting held Friday evening, Nov. 14. The speaker dwelt on a number of subjects, including zinc, nickel, monel metal, mercury; the hardening of copper and of gold, which were classed as myths, and also related a number of stories of mining fakes. This was Prof. Bahney's third appearance before the Branch, and the members are anxiously awaiting his fourth. After the talk refreshments were served and all present united in declaring that it was an evening of good entertainment. The entertainment committee announced that George B. Hogaboom would address the members at the meeting to be held Friday evening, Dec. 2. His subject will be "Brass Plating," and that it will prove a treat goes without saying. Mr. Hogaboom, who is a member of the Connecticut Valley Branch, was the organizer of the Waterbury Branch, and the local "boys" are always anxious and glad to see or hear from "George." Waterbury Branch was represented at the Bureau of Standard's meeting, held in Washington, D. C., Nov. 14 and 15, by President William J. Gray and Treasurer William Delage.

Hartford-Connecticut Valley Branch

Hartford-Connecticut Valley Branch held a largely attended meeting on October 27, at the Hartford Engineers' Club.

Mr. Frank G. Oswald of Pittsfield, Mass., was elected an associate member.

Tennant Elwin was elected secretary-treasurer to succeed Mr. Bagshaw, who resigned, and Mr. George B. Hogaboom was elected president of the Branch.

Following the business meeting, Mr. Hogaboom gave one of the most instructive talks the Branch has ever heard on "Brass Plating." At the beginning of his talk Mr. Hogaboom stated that he knew nothing about brass plating, but after having heard him the Branch is of the opinion that if he doesn't, nobody does.

On Saturday, Nov. 8, members of this Branch were privileged to hear a talk by Dr. Blum on "Recent Advances in the Electro-deposition of Metals," given before the American Chemical Society. Everything that Dr. Blum has to say is interesting and this talk was no exception.

Pittsburgh Branch

We had a regular meeting last Saturday night, Nov. 1, with a very

good attendance and two visitors. Every member present seemed to take a great interest in the coming meeting of the Research Committee with the Bureau of Standards at Washington. It looks like three members of our Branch, besides myself, will attend this conference, and all hope that each branch will have one present. We had good discussions upon several subjects. One subject, "Desirability of Constant Filtration of Solutions," brought out many suggestions, and finally all decided it to be of great value. If the members of this branch will continue to show this interest, Pittsburgh Branch will be very much on the map in the future.

St. Louis Branch

Of course we held a meeting in October, but later than usual, on account of the usual fall social activities peculiar to our city.

One application for membership was read and announcement made of the death of one of our members, Mr. Henry Driftmeyer, of Evansville, Ind.

Word was also received that the wife of Mr. P. E. Miller of Evansville had passed away. Mr. and Mrs. Miller attended the Milwaukee convention, so became acquainted with many of our members. Our members express their sympathy to the bereaved.

Librarian Horath reported that it was his intention to use Blum and Hogaboom's "Principles of Electroplating" as a text-book for discussion of subjects during this season.

Our November meeting was delayed on account of "the landslide" (election day). It was held on Nov. 7, with good attendance. One applicant was elected to membership. Through the efforts of Frank Rushton we are extending our limits to the western coast; thank you, Frank.

The president appointed the following as banquet committee: E. J. Musick, chairman; H. J. Richards, H. Deubelbeis, J. Humbrecht, A. Barth.

Dr. H. C. Ward of Washington University was present and led in the discussion on "Nickel Plating" from Blum and Hogaboom's book.

It was a very interesting meeting.

G. Powitzky acted as secretary in absence of H. H. Williams, who is recovering from a case of sciatica.

New York Branch

President Fischer presided at the October meetings of New York Branch. After the regular routine of business was dispensed with, Mr. Stires of New York Branch read a paper on "Metal Cleaners," which proved very interesting and aroused a lively discussion. The paper will appear in the REVIEW in the near future.

The causes of silver anodes becoming black while solution is operating were discussed. Some of the causes given are as follows: Low content of silver, acid in solution, deficiency of cyanide, impure anodes, impure silver cyanide, excess of carbon bisulphide. The handling of Britannaware before silver plating was discussed. It was recommended to dip the ware after cleaning in a dip composed of sulphuric acid, 1 part; water, 10 parts; instead of the muriatic dip before plating. A question

was asked what causes the forming of nickel solutions. Answer: Excessive current and organic substance in bright nickel solutions. It was decided to hold an open meeting Nov. 14, 1924, in our new meeting rooms in the World Building, Park Row, New York City. Mr. Schneider of New York Branch will speak on "Metal Cyanide Plating Solutions."

Rochester Branch

The tenth annual picnic of the Rochester Branch, A. E. S., was held Sept. 30, at East Maple Wood Park, one of the fine picnic grounds in the vicinity of Rochester. The day was ideal for the occasion. This is one time when all the platers and families get out and enjoy themselves. The main event of the day was the ball game (some game); the score was 14 to 14, which took the most part of the afternoon. Capt. Gartland and Capt. Hesselink had some discussion over the score, but the scorekeeper decided it a tie. Mr. Harper did some fine work back of the bat, and Mr. Lopez did some with the bat. The rest of the sports were enjoyed by the ladies and children, and it was surprising to see some of the ladies get around. We then had dinner and it certainly tasted fine after the exercise. After dinner we danced and everybody seemed to know how to jaz. I think the committee should be commended for the efficient way they handled the affair and the success that goes with it.

Bridgeport Branch

The regular meeting of the Bridgeport Branch of the A. E. S. was opened by President William Flaherty on Nov. 7. A letter was read from R. L. Shepard, chairman of the A. E. S. Research Committee, outlining the work of the fall joint conference of the Committee and the Bureau of Standards, and urging the Branch to send an official representative and as many more as possible. Accordingly, R. J. O'Connor was appointed to represent the Bridgeport Branch. The letters were also read from the New York section of the American Electrochemical Society and the Connecticut-Valley Branch inviting the members to hear Dr. Blum speak, Nov. 7 and 8.

The Speakers' Committee reported that Mr. Webster, Vice-President of the Bridgeport Brass Company, would likely be the speaker at the open meeting, Nov. 21.

OBITUARY

John M. Dunn, Well-Known Plater, Passes Away

John Dunn died on October 16, aged 62 years. Mr. Dunn was born in Middletown, Conn., was connected with the Meriden Britannia Company, which is now the International Silver Company, for 17 years. He then went to Williams Bros., in Glastonbury, for 10 years, and for the last 12 years he was in charge of the plating plant at the Holmes & Edwards Branch of the International Silver Company in Bridgeport. He also had the agency in Connecticut for the Sangamo ampere hour meter and installed the instruments in most of the flatware concerns in the State. Mr. Dunn was one of the first to join the A. E. S. when it was first organized in New York.

Chicago Branch

Regular monthly meeting Chicago Branch, A. E. S., held at Atlantic Hotel, Nov. 11, 1924. Meeting called to order with President F. J. Hanlon presiding and all officers present.

There was a very good attendance.

Mr. Fred Liscomb was the chosen delegate for the fall joint conference A. E. S. and Bureau of Standards, Washington, D. C.

Subject for the evening was „Duralumin, Bright Dips," of which papers and samples were discussed. Bright dips also proved interesting from the way everyone present took part.

Chicago Branch is now getting ready for their annual banquet. Committees for same have been chosen.

Found—Some member left a book in meeting hall. Same can be had from Secretary.

New York Branch

President Fisher presided at the November open meeting of New York Branch of the A. E. S. The regular nature of business was dispensed with. Mr. W. Schnider read a paper on "Metal Cyanides, Their History, Production and Advantages Over Carbonates." Answered all questions satisfactory pretatining to his paper. A lengthy discussion took place on "Metal Cyandes Solutions," in which members and visitors took part. A vote of thanks was tendered to Mr. Schnider for his interesting paper, after which refreshments were served and a very successful meeting adjourned.

Hartford-Connecticut Valley Branch

Hartford-Connecticut Valley Branch met on Sept. 22, at the Hartford Engineers' Club. Mr. Elwin presided and there were ten members present.

The resignation of Secretary-Treasurer Bagshaw was read and accepted with regret. The election of his successor was postponed until the following meeting.

Plans for securing a good speaker for each meeting this winter were discussed and the names of several men were suggested to the librarian.

Mr. E. M. Stephenson presented to the branch a "Travelo" letter file which he has recently invented and has now placed on the market. This is a very ingenious device for holding papers which must be carried around and referred to often. It is made of pigskin and has the monogram of the society stamped in gold on the corners. A vote of thanks was given Mr. Stephenson for this very useful gift.

On Friday, October 17, about a dozen members of this Branch attended a baked bean party given by Mr. George Cartlidge at his home in West Hartford. The justly famous baked beans of Mrs. Cartlidge were devoured in huge quantities, as well as a number of other dishes, after which we sat around and discussed things in general, from the weather to the latest marvels of the radio.

Philadelphia Branch

The regular monthly meeting of the Philadelphia Branch was held on Friday night, October 3, at the Harrison Laboratory, U. of P., President Gehling in the chair, and a large number of members present, which was very gratifying to the Board of Managers, and goes to show the members' appreciation of the efforts made by the officers to make the meetings interesting for the platers.

Three new members were elected to active membership. The scretary reported the sad news of the sudden death of our brother member, William Asimus, in Rome, N. Y.

Several letters of firms were read asking to be put in touch with platers, but as our members are all busy, the letters had to be passed over to other branches.

The Banquet Committee reported the arrangements of the greatest and best meeting and banquet, which will be held on Saturday, Nov. 22, 1924, at Mosebach's Hall. Exhibits will be shown and papers will be read by leading authorities on plating and finishing. They have also arranged a good entertainment for the ladies, with plenty of prizes and souvenirs. Our chemical instructor in his instructions showed the members the value of a standard solution, and also the care which must be used in handling these solutions in order to preserve their integrity. At our next meeting on Nov. 7 each member will be given an opportunity to make a titration of his own, and we hope all the members will take advantage of this opportunity.

Don't forget the banquet and meet all your old friends from out of town, as they are all sure to be there.

Grand Rapids Branch

Grand Rapids Branch held its regular meeting Nov. 12, at Vocational High School, with a very fair attendance.

A large part of our evening was spent discussing sustaining membership, the results of which were sent to the Committee of Past Presidents, who have this under consideration. We then closed for the evening.

Chicago Branch Question Box

Question 1—What effect would there be in a silver solution made in an iron tank without any lining of any kind?

Answer 1—Chloride would tend to drill hole in tank, disadvantage to use iron tank.

Question 2—What is a good pickle for cold rolled steel?

Answer 2—Nitre cake was recommended.

Question 3—How much tetrachloride of carbon to make gasoline non-inflamable?

Answer 3—20% was recommended.

Question 4—How to clean aluminum coffee pots inside after the outside surface is buffed?

Answer 4—Neutral whale oil soap or scratch brush.

Cleveland Branch

The Cleveland Branch met at the Hotel Winton for the regular November meeting, which proved very interesting. The meeting was called to order at 8 p. m., with Mr. Scott presiding. The secretary was instructed to write to all of the known supply houses that are selling chemicals and plating machines to the Cleveland manufacturers that do away with the forman plater, and have them explain all about it, as the Cleveland Branch is very interested. A committee was also appointed to investigate further. Adjournment was called for at 10:30 P. M.

ELECTED TO MEMBERSHIP

Grand Rapids Branch

Wm. J. Chambers.....522 Urnatilla St., S. E., Grand Rapids, Mich.

Rochester Branch

Chas. J. Griffen .....24 Carson Ave., Rochester, N. Y.
Geo. W. Scobell .....77 Roxborough Rd., Rochester, N. Y.

Chicago Branch

Fred T. Ervert .....2939 Roscoe St., Chicago, Ill.

St. Louis Branch

George H. Dulgarian .....1431 South Los Angeles St., Los Angeles

Hartford-Conn. Valley Branch

Frank J. Oswald, Assoc. .....59 Pomeroy Ave., Hartford, Conn.

Montreal Branch

John Ainslie, ...33A St. Peter St., Sherbrooke, Que.
Charles Vandermark ....29 St. Termain St., St. Lawrent, Montreal, Can.

APPLICATION

Grand Rapids Branch

Edmund P. Braun .....Hancock Mfg. Co., Grand Rapids, Mich.
Edmund P. Brown .....Hancock Manufacturing Co.

Cleveland Branch

Thomas Sweeny .....3185 W. 95th St., Cleveland, O.

Chicago Branch

Edward Bernhardt .....6606 So. Francisco Ave., Chicago, Ill.
Margos Pcharanian .....1462 Bryan Pl., Chicago, Ill.

Toronto Branch

Jas. B. Walmsley....154 Portland St., Dartsmouth, Nova Scotia, Canada

Milwaukee Branch

Herman Peterson .....762 Hubbard St., Milwaukee

REINSTATED

Montreal Branch

Wm. J. Salmon....9 Burnside Place, Apartment No. 7, Montreal, Canada

Chicago Branch

Erwin Sohn, Associate .....720 N. Mayfield Ave., Chicago, Ill.

Cleveland Branch

C. A. Braden .....Cleveland, O.

SUSPENDED

Boston Branch

Charles H. Morton .....60 Columbus Ave., Waltham, Mass.

BOSTON

Regular meetings are held first Friday of each month, at 8 p. m., at the American House, Boston. Secretary, A. W. Garrett, 89 Alexander St., Dorchester, Mass.

BRIDGEPORT

Meets first and third Friday of each month at 62 Cannon St., Room 17, Bridgeport, Conn. Secretary R. J. O'Connor, 1128 Noble Ave., Bridgeport, Conn.

CHICAGO

Meets second Saturday of each month, at 8 p. m., Atlantic Hotel, 316 S. Clark St. Secretary, Robt. Meyers, 1116 Lill Ave., Chicago, Ill.

CINCINNATI

Meets every Thursday, 7:30 p. m., at Vocational Training School, Spring and Liberty St. Secretary, W. J. Husing, 729 McMakin Ave., Cincinnati, Ohio.

CLEVELAND

Meets first Saturday of each month at Hotel Winton. Secretary, H. S. Kneeland, 3924 Clybourne Ave., Cleveland, Ohio.

HARTFORD-CONN. VALLEY

Meets on the fourth Monday of each month at 747 Main St., Hartford, Conn. Secretary, Tennant Elwin, 1145 Boulevard, West Hartford, Conn.

DAYTON

Meets first Saturday of each month at the Y. M. C. A., Dayton, Ohio. Secretary, Albert Bates, Box 34, Vandalia, Ohio.

DETROIT

Meets first Friday of each month at 478 Alexandrine West. Secretary, R. L. Shepard, 1388 Yorkshire Road, Fox Creek Sta., Detroit, Mich.

GRAND RAPIDS

Meets on the second Wednesday of each month at the Vocational High School, 129 Bostwick Ave., N. E. Secretary, John Raven, 1139 Emerald Ave., Grand Rapids, Mich.

INDIANAPOLIS

Meets the second Saturday of each month at Hotel Denison. Secretary, Louis Mertz, 1725 Union St., Indianapolis, Ind.

MILWAUKEE

Meets second and fourth Thursdays of each month at Lipps Hall, 321 3d St. Secretary, Roy Hunt, 4720 Lisbon Ave.

MONTREAL

Meets every Friday at 84 Craig St. West. Secretary, John H. Feelay, 411 Aylmer St., Quebec, Canada.

NEWARK

Meets first and third Fridays of each month at No. 17 Central Ave., Newark, N. J. at 8 p. m. Secretary, John Hiem, 25 Chestnut St., Newark, N. J.

NEW YORK

Meets every second and fourth Fridays of each month in the World Building, Park Row, New York City, N. Y. Secretary, J. E. Sterling, 468 Grand Ave., Long Island City, N. Y.

PHILADELPHIA

Meets first Friday of each month in the Harrison Laboratory Building, University of Pennsylvania, 34th and Spruce Sts. Secretary, P. Uhl, 2432 North 29th St., Philadelphia, Pa.

PITTSBURGH

Meets first Saturday of each month at 8 p. m., at United States Bureau of Mines Bldg., Forbes St. Secretary, S. E. Hedden, 227 Fifth St., Aspinwall, Pa.

PROVIDENCE-ATTLEBORO

Meets first and third Thursday of each month at 184 Washington St., Room 308, Providence, R. I. Secretary, Robert Crook, 185 County St., Attleboro, Mass.

READING

Meets on the second Tuesday of each month. Secretary, William M. Fisher, 654 Gordon St., Reading Pa.

ROCHESTER

Meets every second and fourth Saturday of each month at the Powers Hotel. C. A. Reama, Secretary, 512 Lyell Ave., Rochester, N. Y.

ST. LOUIS

Meets first Tuesday of each month at Barr Branch Library, corner Jefferson and Lafayette Sts. Secretary, H. H. Williams, 4156 Botanical Ave., St. Louis, Mo.

TOLEDA

Meets first Thursday of each month at Toledo University Science Building, Electro-Platers' Room, corner Cherry and Page Sts. Secretary, W. W. Weiker, 411 3d St., Toledo, Ohio.

TORONTO

Meets fourth Monday of each month at Canadian Foresters' Hall, 22 College St., Room No. 2. Walter L. Barrows, 628 Dover Court Road, Toronto, Ontario, Canada.

WATERBURY

Meets every second and fourth Friday of each month. Secretary, Wm. F. Guilford. 230 Cooks St., Waterbury, Conn.